



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

08/846,671 04/30/97 KO

K 11675.114

IM22/0217

BRADLEY K DESANDRO  
WORKMAN NYDEGGER AND SEELEY  
1000 EAGLE GATE TOWER  
60 EAST SOUTH TEMPLE  
SALT LAKE CITY UT 84111

EXAMINER

GOUDREAU, G

ART UNIT

PAPER NUMBER

1765

6

DATE MAILED:

02/17/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No. <b>08-846,671</b>	Applicant(s) <b>Ko</b>
Examiner <b>George Goudreau</b>	Group Art Unit <b>1765</b>

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- ☒ Responsive to communication(s) filed on 12-2-99' (ie. - paper #5)
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-46,50 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☒ Claim(s) 37-38,40,43 is/are allowed.
- ☒ Claim(s) 1-36, 39,41-42, 44-46,50-54 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
  - ☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been received.
  - ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_
  - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 2,3
- ☒ Notice of References Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

Office Action Summary

Art Unit: 1765

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1-4, and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Douglas (4,807,016).

Douglas discloses a process for selectively plasma etching a PSG layer to a SiO<sub>2</sub> layer on a semiconductor wafer in a plasma comprised of (NF<sub>3</sub>-H<sub>2</sub>-He) using a patterned resist with an etch selectivity of the doped to undoped oxide of more than 10:1. The etch process is conducted at 5 C with a process pressure of 2 torr. This is discussed specifically in columns 2-4; and discussed in general in columns 1-8. This is shown in figures 1-5.

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 5-8, 13-14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas as applied in paragraph 16 above .

Douglas as applied in paragraph 16 above fail to specifically disclose the following aspects of applicant's claimed invention:

Art Unit: 1765

-the specific etch process conditions claimed by the applicant

It would have been prima facie obvious to employ any of a variety of different etch process conditions in the plasma etching process taught above including those claimed by the applicant. These are all well known variables in the plasma etching art which are known to effect both the rate and quality of the plasma etching process. Further, the selection of particular values for these variables would not necessitate any undue experimentation which would be indicative of a showing of unexpected results.

19. Claims 1-9, 11-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et. al. (5,677,227).

Yang et. al. disclose a process for fabricating a semiconductor substrate comprised of the following steps:

-First, a BPSG layer is selectively etched to a field oxide layer (IE.-SiO<sub>2</sub>) in a plasma comprised of CHF<sub>3</sub>;

-Second, Si<sub>3</sub>N<sub>4</sub> spacers are formed around W polycide gate structures using an etching process.; and

-Third, W polycide plugs are deposited between the openings between adjacent W polycide gate structures on the wafer.

This is discussed specifically in columns 4-6; and discussed in general in columns 1-12.

This is shown specifically in figures 3-6; and shown in general in figures 1-17. Yang et. al. fail, however, to specifically disclose the following aspects of applicant's claimed invention:

Art Unit: 1765

-the specific etch process conditions claimed by the applicant

It would have been prima facie obvious to employ any of a variety of different etch process conditions in the plasma etching process taught above including those claimed by the applicant. These are all well known variables in the plasma etching art which are known to effect both the rate and quality of the plasma etching process. Further, the selection of particular values for these variables would not necessitate any undue experimentation which would be indicative of a showing of unexpected results.

20. Claims 1-9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosch et. al. (5,611,888).

Bosch et. al. disclose a process for fabricating a semiconductor substrate comprised of the following steps:

BPSG or BSG is selectively plasma etched to SiO<sub>2</sub> in a plasma comprised of (CHF<sub>3</sub>-Ne). This is discussed specifically in the abstract; and discussed in general in columns 1-6. This is shown in figure 1. Bosch et. al. fail, however, to specifically disclose the following aspects of applicant's claimed invention:

-the specific etch process conditions claimed by the applicant

It would have been prima facie obvious to employ any of a variety of different etch process conditions in the plasma etching process taught above including those claimed by the applicant. These are all well known variables in the plasma etching art which are known to effect both the rate and quality of the plasma etching process. Further, the selection of particular

Art Unit: 1765

values for these variables would not necessitate any undo experimentation which would be indicative of a showing of unexpected results.

21. Claims 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (JP61-133,666).

Yamazaki discloses a process for selectively rie etching a PSG layer to a SiO<sub>2</sub> layer on a gate electrode in order to form a PSG sidewall spacer on the sides of the SiO<sub>2</sub> sidewall spacer on the sides of the gate electrode. This is discussed specifically in the abstract; and discussed in general on pages 317-319. This is shown in figures 1-2. Yamazaki fails, however, to specifically disclose the following aspects of applicant's claimed invention:

-the specific etch process conditions claimed by the applicant

It would have been prima facie obvious to employ any of a variety of different etch process conditions in the plasma etching process taught above including those claimed by the applicant. These are all well known variables in the plasma etching art which are known to effect both the rate and quality of the plasma etching process. Further, the selection of particular values for these variables would not necessitate any undo experimentation which would be indicative of a showing of unexpected results.

22. Claims 9-10, 15-16, 18-36, 39, 41-42, 44-46, and 50-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1765

-In claims 9, 15, 30, 34, 39, 45, and 53, applicant claims a compound with the molecular formula of C<sub>2</sub>F<sub>8</sub> which cannot exist.;

-In the last line of claim 18, the phrase "the spacer material" occurs twice in a row which cannot be.;

-The usage of the word "composed" in claims 22-23, 26, 31-32, and 44 is unconventional Markush language. Applicant should use the term comprised instead.;

-Claim 34 depends upon claim itself (i.e. - claim 34) which cannot be.;

-The phrase "from a group" in claims 31, 39, 41-42, and 44-45 should be replaced with "from the group" in order to be more conventional Markush language.;

-In line 22 of claim 44, the phrase "a said" should be replaced with "said".; and

-In the last paragraph of claim 50, a comma occurs twice in a row which cannot be.

23. Claims 37-38, 40, and 43 are allowed.

24. Claims 10, and 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

25. Claims 18-30, 39, 41-42, 44-46, and 50-54 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in this Office action.

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 1765


27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner George A. Goudreau whose telephone number is (703) -308-1915. The examiner can normally be reached on Monday through Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Examiner Benjamin Utech, can be reached on (703) -308-3836. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) -308-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) -308-0661.

  
George A. Goudreau/gag

Examiner AU 1765

  
WILLIAM F. POWELL  
PRIMARY EXAMINER  
GROUP 1100